



JOINT WARFARE SYSTEM

**Program Update
for
DMSO Industry Days**

May 23, 1997

**Jim Metzger
Director, JWARS Office**

Agenda

- **Background**
- **Mission**
- **Management**
- **Schedule**
- **Prototype**
- **Technical Approach**



Background

Feb 95 - DepSecDef directed the Director, PA&E, with participation from the Assistant Secretary of Defense (Strategy and Requirements) and the Joint Staff, to

- Initiate a phased program to upgrade existing joint analytic models and simulations (near term) and develop a set of next generation models (longer term).
- Identify an approach and management structure.

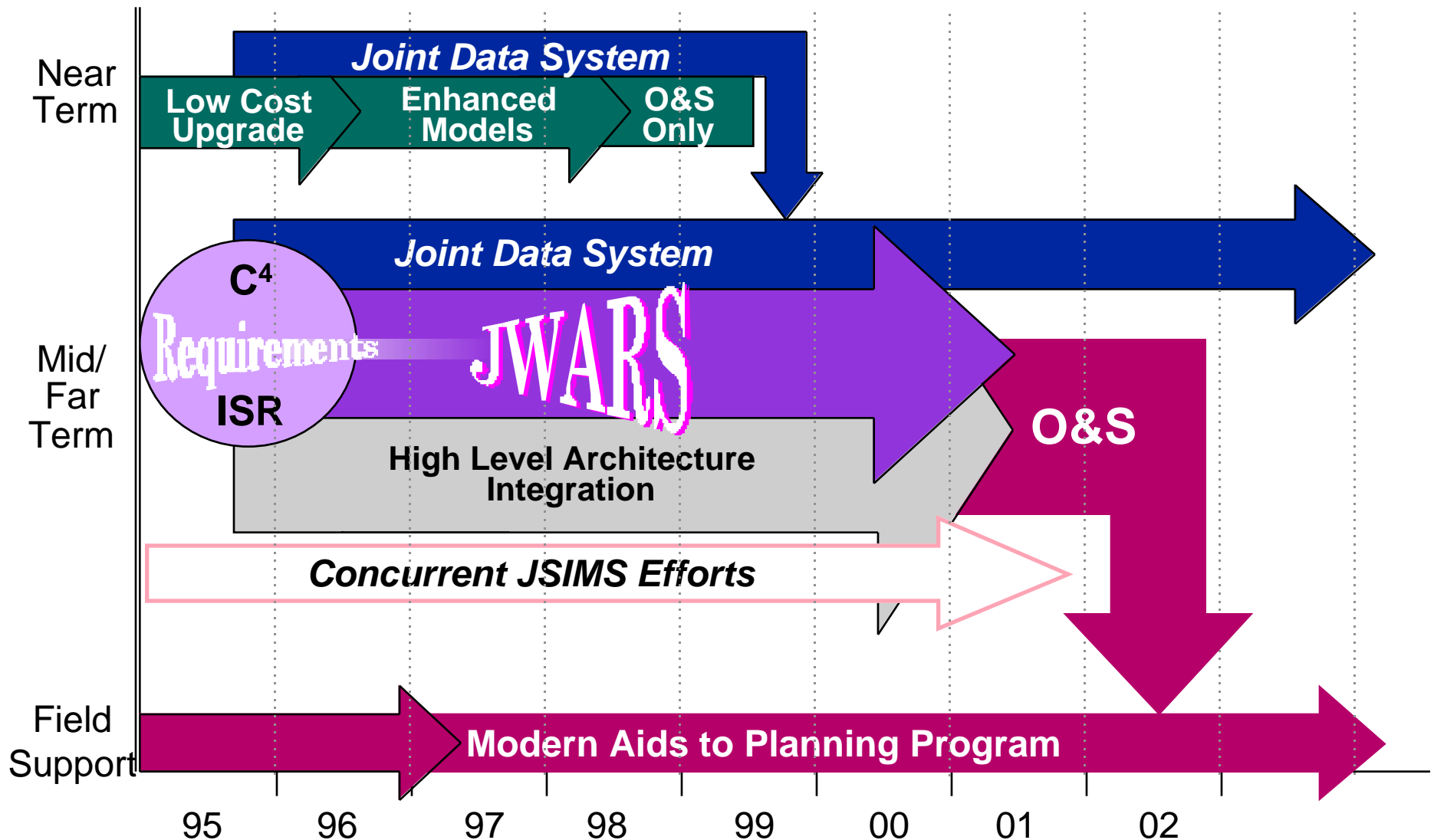
May 95 - DepSecDef approved the Joint Analytic Model Improvement Program (JAMIP) and directed PA&E in cooperation with the Joint Staff to

- Set up the Joint Warfare System (JWARS) Office.
- Establish manpower and support for the JWARS Office with assistance from the Services.
- Develop a funding plan.

Nov 95 - DepSecDef formally established JWARS Office.

Jun 96 - DepSecDef designated ODPA&E (Joint Data System) as primary data support agency for JAMIP.

Joint Analytic Model Improvement Program (JAMIP)



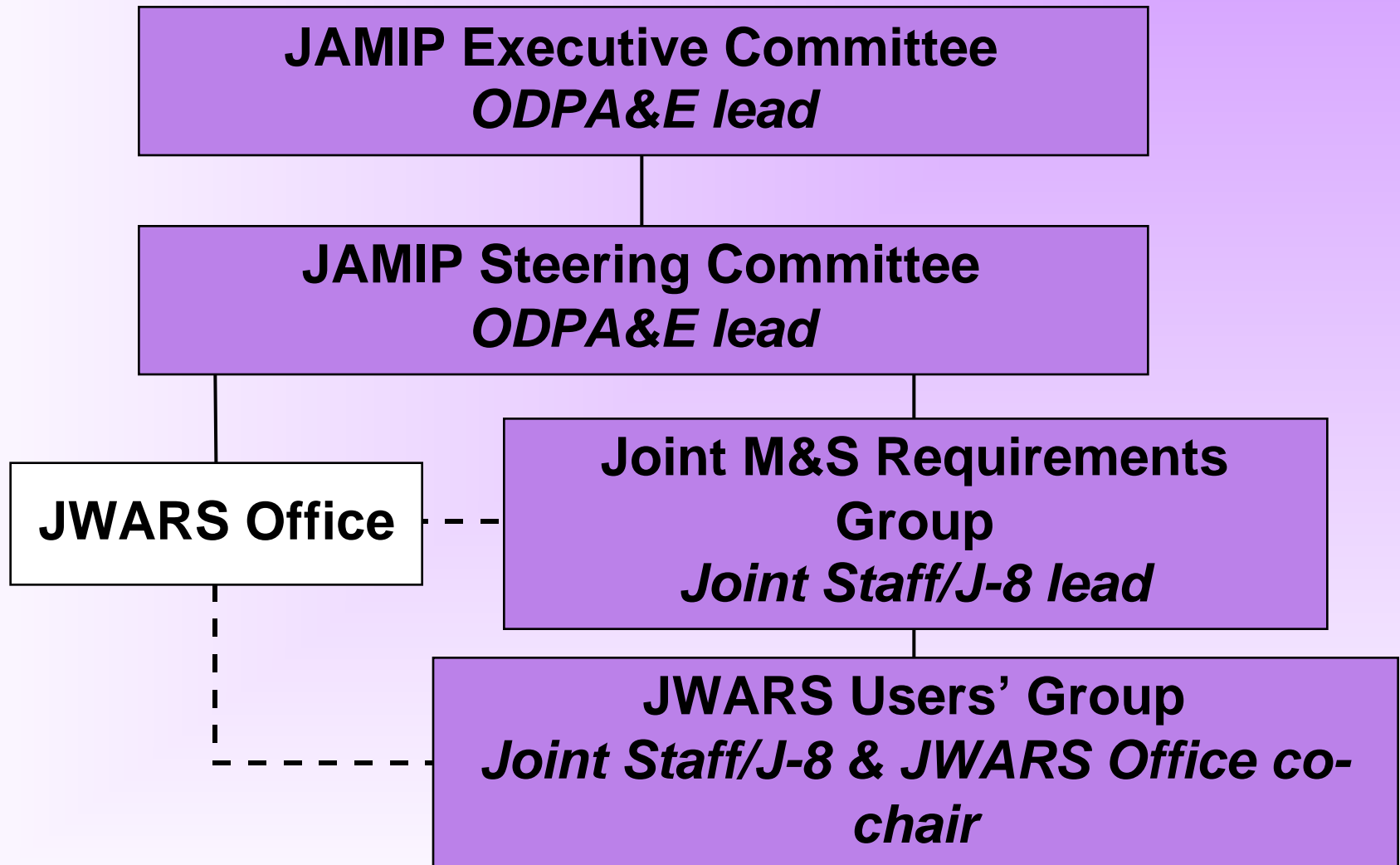
Develop a state-of-the-art, closed-form simulation of joint, campaign-level warfare that:

- Represents uniquely joint functions and processes and component warfare operations.
- Is based on joint doctrine.
- Is capable of representing future warfare.
- Support analysis --

Users**Principal uses****CINCs****evaluation of courses of action****Joint Staff****analysis of force sufficiency****JWCA****issue development****Joint capability trade-off****Services****analysis of system alternatives****system trade-off****OSD & other DoD****force trade-off****evaluation of programming****alternatives**



Principal JWARS Groups



JWARS Participants

Organizations	Roles													
	oversight	requirements	technical advice	warfare functionality	architecture	environmental rep	mission space analysis	OO design	prototype	interoperability	VV & A	data, VV & C	testing	research
JAMIP Executive Committee	✓													
JAMIP Steering Committee	✓													
JM&SRG		✓												
Users' Group		✓		✓						✓	✓			
Technical Support Group			✓											
Development contractors					✓		✓	✓	✓				✓	
Argonne National Laboratory					✓	✓								
Los Alamos National Lab							✓	✓						
Service analysis orgs & SMEs			✓	✓					✓	✓	✓			
Threat organizations				✓						✓	✓			
Joint Data System											✓			
JSIMS JPO						✓			✓					
DMSO / HLA / AMG			✓						✓					
Indep V&V agent (<i>to be det</i>)										✓				
Indep testing agent (<i>to be det</i>)												✓		
Multiple contractors														✓



JWARS

Capability

Prototype

Apr 97

- Not intended for routine analytic usage
- Confirm High-Level Design
- Test High-Level Design with limited C4ISR implementation (strike operations)

Block I

2 years

- Force sufficiency and Course of Action evaluation
- Balanced representations
- Impact of C4ISR
- Examples: Nimble Dancer, MRS BURU

Block II

+1 year

- Force trade-off
- More detailed C4ISR-related value-added and system trade-off
- Balanced representations
- Impact of C4ISR
- Example: B-2 Bomber Study

Block III

+1 year

- Analysis of system alternatives, system trade-offs
- Acquisition investment decision support
- C4ISR value-added and trade-offs
- Examples: JWCA, JAST



JWARS Prototype: Proof-of-Concept

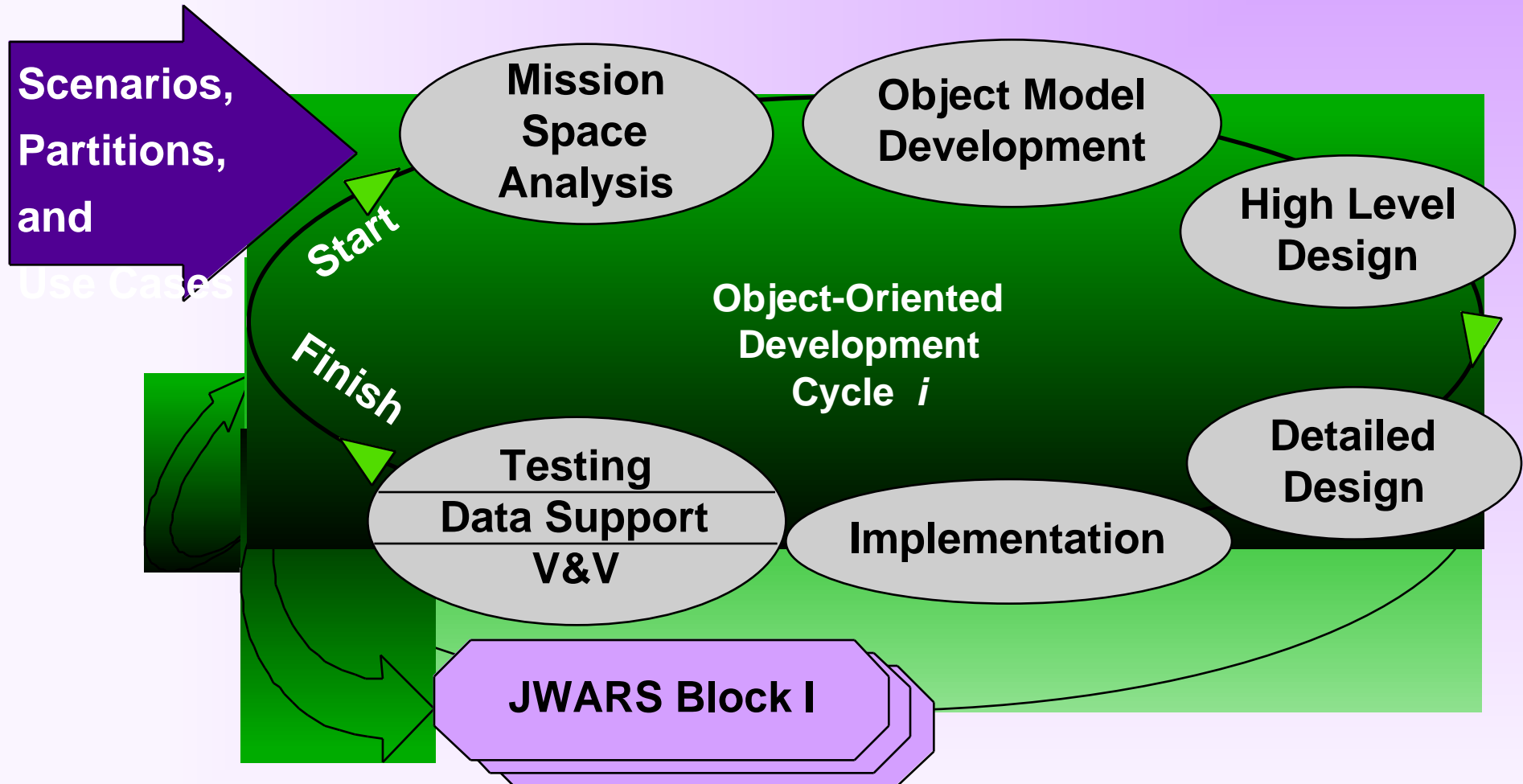
Objectives

- **Develop a high-level design for production versions**
- **Examine issues that will drive the JWARS architecture**
- **Test drive the software development process**
- **Examine critical C4ISR issues**

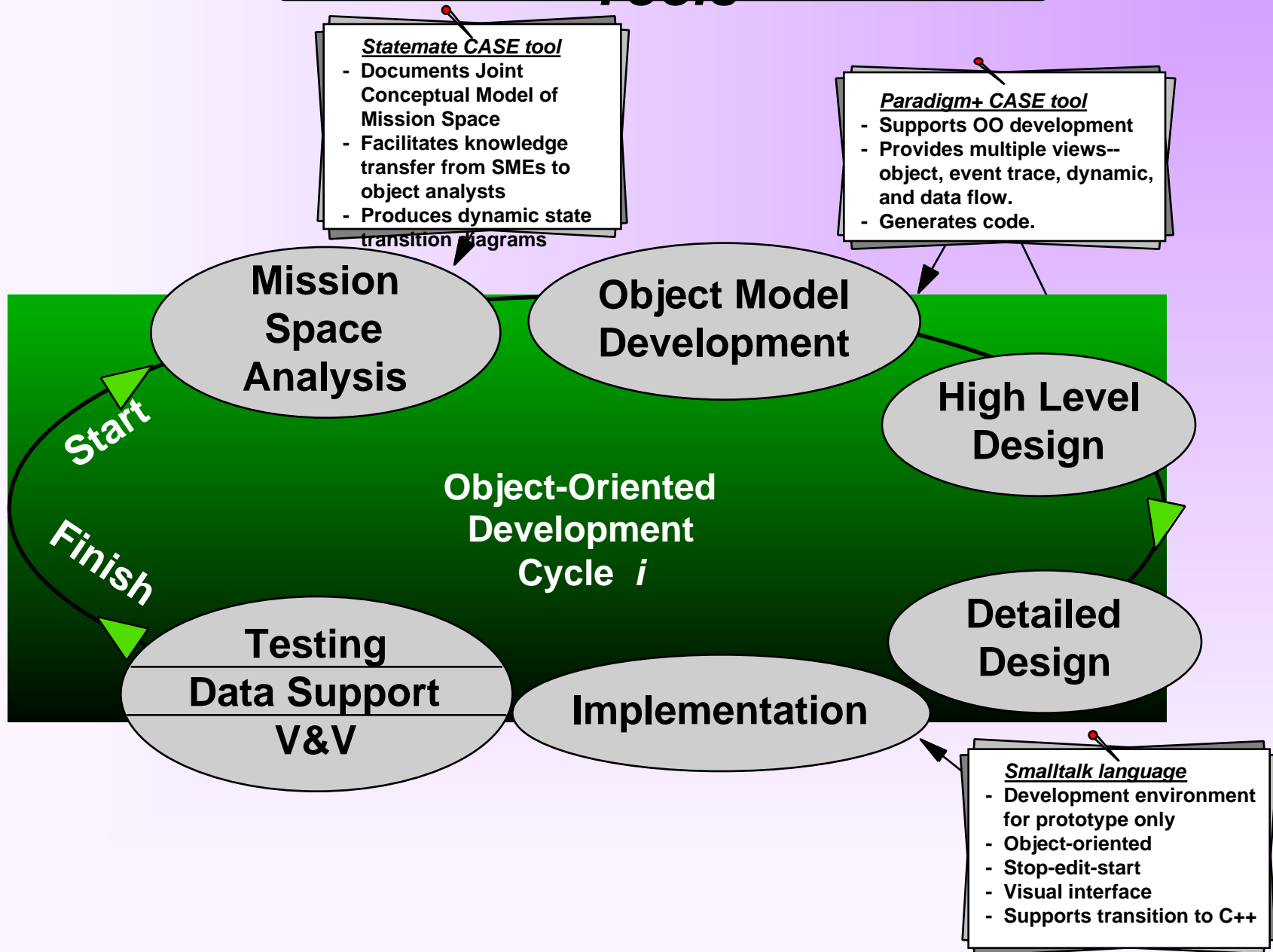
Results

- **Design (object classes and composition approach) developed; testing (scaleability, runtime) underway**
- **Architecture developed; testing underway**
- **Software development process refined, ready for IOC**
- **C4ISR Issues addressed:**
 - **Battlespace perception (intelligence planning, collection, processing, and SITMAP) link to battle management**
 - **Sensor operations**
 - **Battle management - key decisions based on SITMAP**
 - **Data display for post processing analysis**

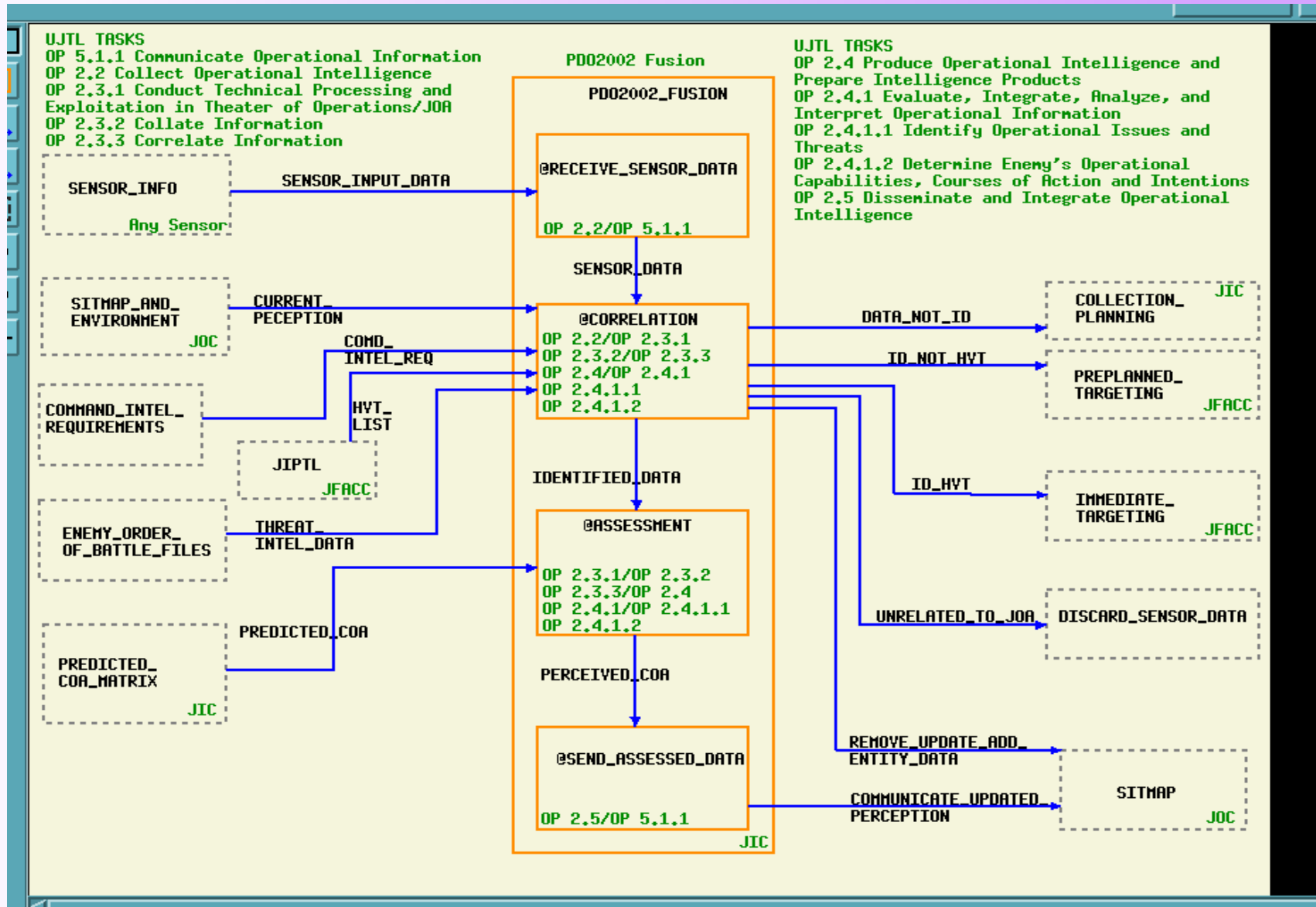
Software Development Process



Prototype Development Tools

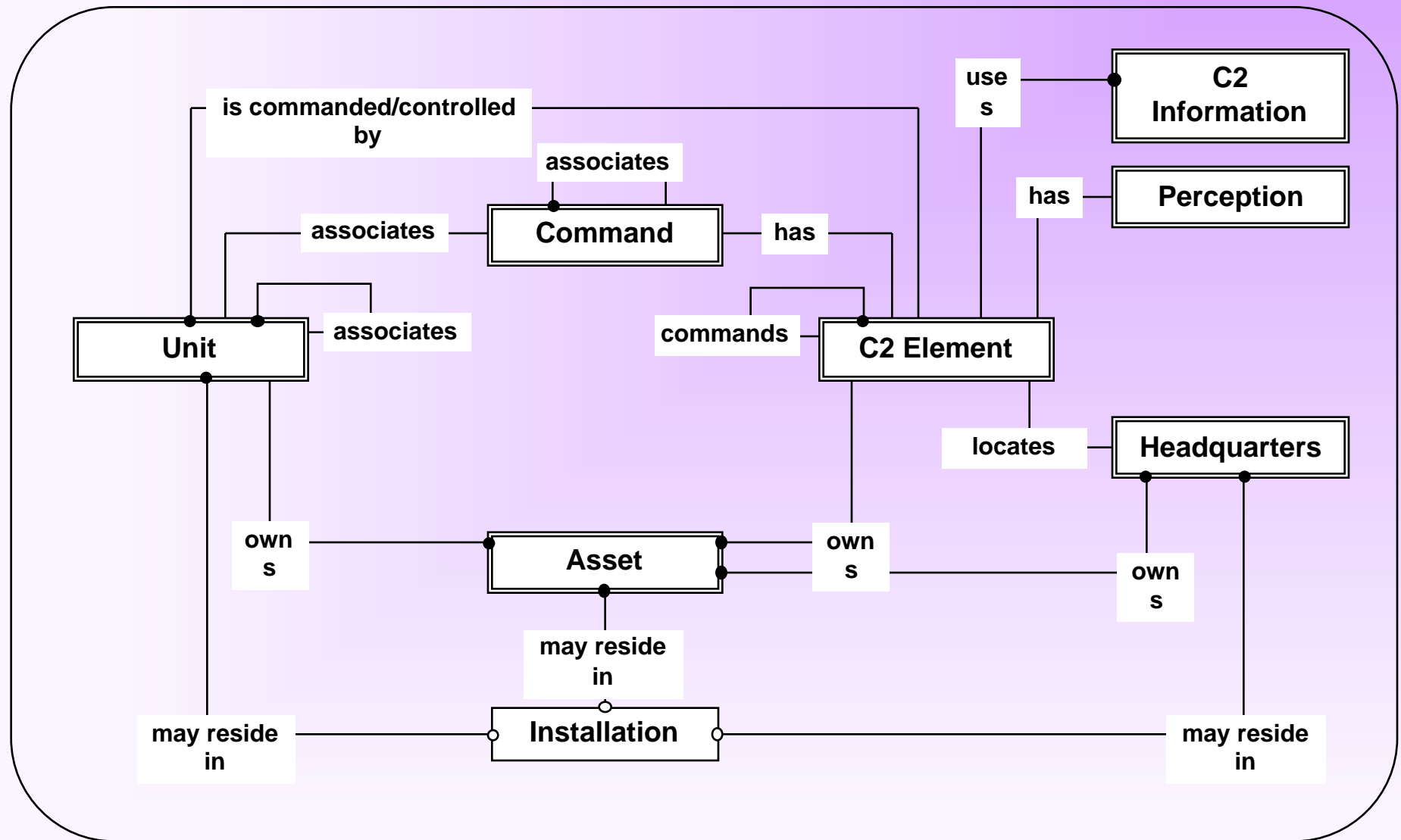


Mission Space Model STATEMATE Output: Fusion Activity Diagram





JWARS OOA Object Model: Super Class Structure





JWARS Payoff

Warfighting

First capability to support CINC COA evaluation from a truly integrated, joint operational perspective.

Force Structure

Enhanced capability to evaluate inter-Service, intra-Service, and total force requirements.

Modernization

Better representations of value of investments in C4ISR and weapons systems.

Key Issues

New ability to address investment requirements in areas such as mobility, logistics, and support for contingency operations.



Back Up Charts

Sample Screens

from JWARS

Prototype



Prototype Menu

File Mode Study Management Simulation Control Display HLA Databases Help





Prototype: Run Control Manager

Date **Time** **(Display Info)** **Simulation Log**

Start : Jun 21 1996 6:00:00 am

Stop : Jul 23 1996 6:00:00 am

Asynchronous Time (Based on last event)

Current :

Elapsed: hours

Run **Reset Simulation**

Last Simulation TerminatedByUser

Notebook Options Visible

Display Objects

Entities	Instances	Entity Attributes
+ EA6B		+ Base Attributes
+ F15E		+ commnode
+ FA18		+ platform
+ JSTARS		+ sensor
JSTARS_REC		
+ SA2		

Entity Look

Turn On Display List

Apply **Cancel**

None **Dot** **Icon** **Picture**

Audit

Display Objects

Display Options

Event Tracking

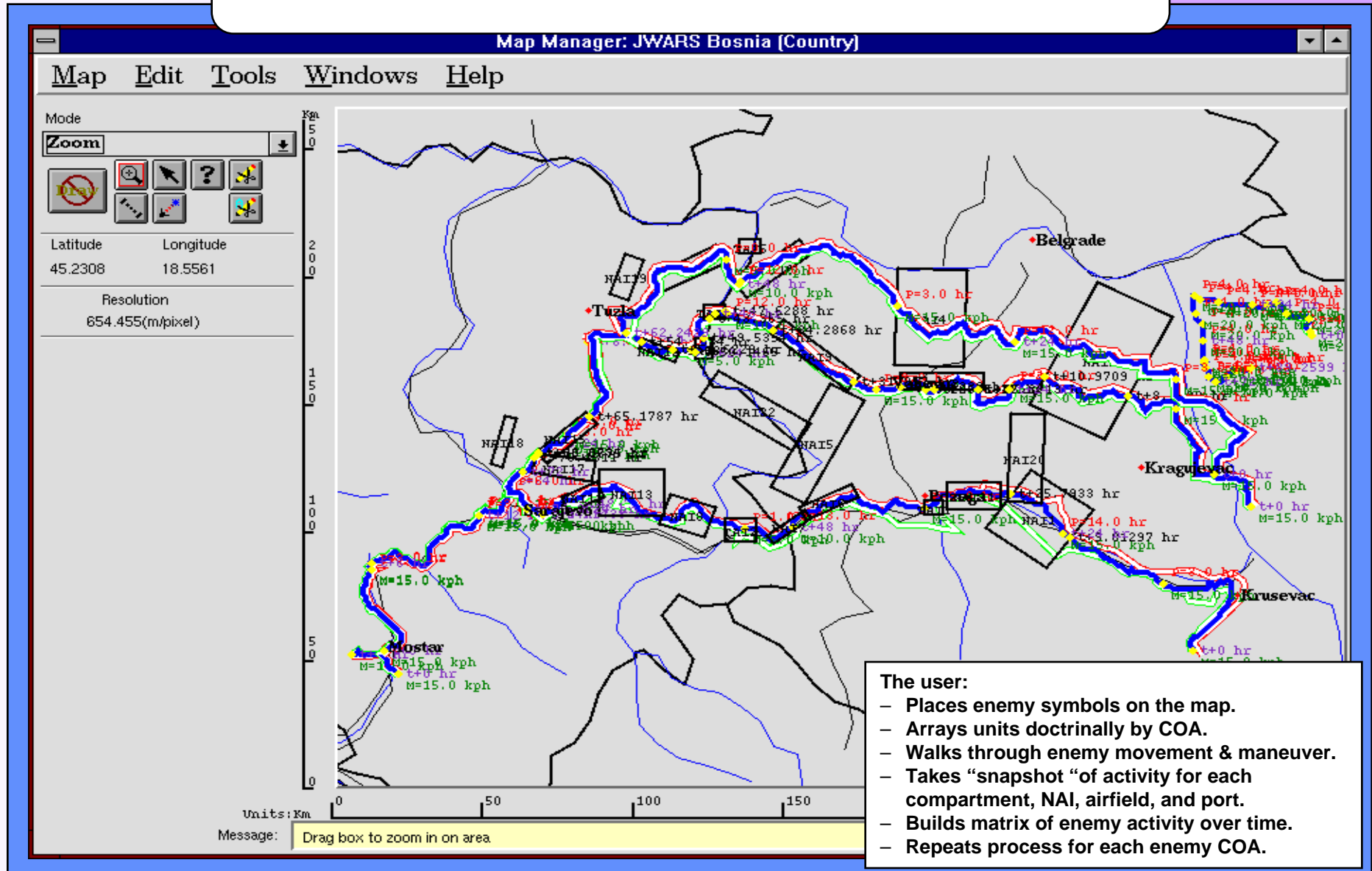
Information Tracking

Intermediate Reports

Pauses

Simulation Dates

Prototype: Automated IPB Screen





Prototype Run: Fusion Assessment at 18 Hours

